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Perceptions of nursing professionals front the pain of newborns in a neonatal intensive therapy unit

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ABSTRACT. Objective: This study aims to know the perceptions of nursing professionals regarding the identification of pain in the newborn, as well as to assess the level of knowledge of these professionals regarding the existence and applicability of pain assessment scales for newborns and possible nursing interventions to be performed. Methodology: This is a qualitative, exploratory, descriptive and cross-sectional study conducted at the Intensive Care Unit of Hospital Escola in the city of Itajubá, State Minas Gerais. The present study counted on the participation of 20 professionals who answered two instruments to capture the data from March to June 2016. The analysis was done by the statistical program Excel version 2013 and as for the data, it was recorded by means of interview, it has been used the analysis of content proposed by Laurence Bardin. The study was approved by the Research Ethics Committee of Teresa D'Ávila University Center. Results: The following categories were listed: Yes, Venous Puncture, Crying, Non-pharmacological interventions, Yes, NIPS scale and Non-use of scale. Conclusion: This study will enable the critical reflection of professionals involved in the care of the neonate in pain situation, sensitizing them to interpret and minimize pain in the human being who is not yet able to verbalize it.

Keywords: neonatal nursing; humanization of assistance; qualitative research.

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Introduction

Pain, for many authors, is defined as an unpleasant emotional and sensory experience that manifests itself in the presence of existing or potential injury in body tissues; thus, each individual tends to identify this phenomenon through their own experiences. In newborns, the painful experience can be observed through distinct manifestations, such as: crying, facial expressions and agitation. Therefore, although the newborn has an inability to communicate verbally in order to identify the pain, it does not mean that it does not experience this sensory experience (Guinsburg & Cuenca, 2010; Costa et al., 2017).

For a long time, the painful perception of the newborn was neglected due to the belief that newborns were unable to feel pain because they did not have the nervous system completely formed, which identifies such sensation. The aforementioned possibility of pain has been investigated since 1940, when, through studies, it was confirmed that in newborns, myelination of the nerves is still incomplete. It was only in the 70s, through further studies, that it was proved that nerve impulse conduction and nerve function do not depend entirely on the nerve myelination, because only 80% of the adult fibers that transmit pain are myelinated. In 1981, new studies were carried out, proving that the fetus may already feel pain and that the newborn already has a nervous system with the capacity to perceive and feel pain, despite being still in development (Moreno, 2012).

Currently, it is known that, although immature, the neurobiological system of the newborn responsible for nociception is formed between the 24 and the 28th week of gestation and the peripheral and central structures that collaborate for the perception of the pain are present and functioning in the newborn during birth (Paixão, Maranhão, Melo, Vieira, & Monteiro, 2011).

The hospitalization of the newborn in a neonatal intensive care unit (ICU) exposes it to invasive procedures for diagnostic and therapeutic purposes that cause pain, a fact that points out the need for the accurate look of the professionals involved in the care of the referred clientele. However, in order to observe and evaluate the semiological characteristics of pain, being a professional in the health area does not always mean being able to identify the divergent painful manifestations felt by infants, since the experience and the time working in the area are the main requirements of aptitude for such evaluation (Paixão et al., 2011).

Therefore, a good evaluation performance of the pain in the newborn is characterized as the primary attitude of the professionals involved in their care, since it depends on the decision to implement analgesia for the hospitalized newborn. In this sense, the applicability of methods that support this evaluation is necessary during the assistance given to such clientele. It is worth noting that health professionals are considered as 'more experienced' because they are better prepared to identify expressions that indicate painful sensation in newborns (Matsuda, Martins, Neto Filho, & Matta, 2014; Christoffel et al., 2017).

The interest in developing this study is based on the observations experienced by one of the authors during daily professional practice. During daily practice, she has noted the existence of several situations where newborns were exposed to painful procedures, such as: venous, arterial and calcaneal punctures; intubation and tracheal aspiration; catheterizations and probing; electrodes and adhesive plaster removal; exchange of bandages; sensors pressing body parts; tight diaper; sudden changes of decubitus, excessive handling, among others.

In response to the procedures mentioned, the hemodynamic and behavioral changes are noted before, during, and after the potentially painful stimulus. Understanding these changes is not an easy task, considering that, many times, the observable pain indicators can often be minimal or absent, which makes it difficult for nursing professionals to assess the pain intensity in the newborn as well as to propose effective interventions facing the subjectivity involved in the painful sensation.

Another encouraging factor of this study is due to the fact that the nursing professional has autonomy towards the pain of the newborn, because, as nurses, the responsibility with the referred subject is enormous, since pain brings damages and limitations to the child, compromises its development, alters its behavior and jeopardizes its clinical evolution, in addition to altering its respiratory, cardiovascular and metabolic stability, increasing neonatal morbidity and mortality rates.

This study aims to know the perceptions of nursing professionals regarding the identification of pain in the newborn, as well as to assess the level of knowledge of these professionals regarding the existence and applicability of pain assessment scales for newborns and possible nursing interventions to be performed.

Material and methods

This qualitative study, with an exploratory, descriptive and cross-sectional approach, was carried out in a Neonatal Intensive Care Unit (Nicu) at Hospital Escola in the city of Itajubá, State Minas Gerais. Data collection was carried out From March to June of 2016 and the participants collaborated answering to a semi-structured interview containing two different instruments: a questionnaire formulated to register the personal characteristics of the participants and a questionnaire designed to meet the objectives of the study.

This unit has a team of 18 nursing technicians, five nurses and one coordinator, working in the three work shifts: Morning, Afternoon and Night. From the total, 20 professionals have participated in the study, with three nurses and 17 nursing technicians.

As inclusion criteria, we considered professionals who have been working in the chosen unit for a minimum period of six months, acting directly in the care of newborns in the Nicu and have agreed to participate in the study, signing a free informed consent term.

For the analysis of the numerical data obtained, the researchers have used Microsoft Excel version 2013 and, through the descriptive statistics, the acquired information have been recorded. The data obtained through the semi-structured interview have been transcribed and later analyzed through a superficial and exhaustive reading, as suggested by the Content Analysis proposed by Laurence Bardin, from which six categories have emerged.

The content analysis is a set of methodological tools of a subtle nature that apply to research involving extremely diverse 'discourses'. This information is collected through many means of communication, namely: interviews, documents, newspapers, magazines, among others. This information must be handled in accordance with the systematization proposed by the author, which divides the analysis process into four distinct phases: pre-analysis; exploitation of the material or coding; treatment the results; interference and interpretation (Bardin, 2011).

The candidates who have not met the desired profile were automatically excluded. This study was developed after the Research Ethics Committee of Teresa D'Ávila University Center (Unifatea) approval, under number 1.317.779, obeying the ethical precepts established by resolution 466/12, which encompasses research ethics involving human beings.

The total sample of participants for this study was 20 employees, organized by Arabic numerals (ENF 1, ENF 2 ..., TEC 1, TEC 2 ...), for a better visualization of the results.

Results and discussion

Among the participants, most were women, represented by three nurses and 17 nursing technicians. As for the age there was an oscillation from 25 to 50 years. Regarding the variable time of professional experience there is a predominance of four to six years of work activity in the chosen institution; however, it is worth mentioning that six participants have more than nine years of experience and 14 of them work in the neonatology area from four to six years.

After the transcription of the data obtained through the semi-structured interview and subsequent content analysis, it has been possible to list the following categories: Yes; Venous puncture; Cry; Non-pharmacological interventions; Yes, scale NIPS; and Non-use of scale.

Given the context, it has been possible to list the category 'Yes' after analysis of the first open question: 'In your opinion, premature children feel pain'? It was clear that the majority of the participants of the study affirmed that yes, a child feels pain.

> 'Yes' (ENF1, 2, 3; TEC 1, 2, 3, 4, 5, 6, 7, 8, 9,10, 11, 12, 13, 14, 15, 16 e 17).

According to Souza (2014), there are studies demonstrating that newborns, both premature and full term, present all the anatomical, functional and neurochemical components necessary for the reception, transmission and integration of the pain stimulus. Pain pathways transmission begin their development during the fetal life and continue after birth.

In the study by Costa et al. (2017), aiming to verify the knowledge and practices of nurses managing pain in newborns admitted to the Intensive Care Unit, the authors have showed that most nurses participating in the study consider that premature newborns and full term are able to feel pain.

However, the results found by the authors mentioned above contradict those found by Oliveira et al. (2016); in their study, the authors state based on the study sample, that there are nursing professionals, even in their minority, who still disagree that the newborn is able to perceive, respond to it and memorize pain.

The second category listed in the present study was 'Venous Puncture', listed from the following open question: 'During your professional experience in Neonatal Intensive Care Unit, please answer: in which procedure and/or manipulation performed in the newborn do you notice the manifestation of pain?'

The main procedure mentioned by the participants regarding intravenous therapies was venous puncture, which hasn´t been a surprise, given that this procedure is one of the most used in the treatment of critically ill children. It can be seen in the statement of the professionals listed below:

> [...] venous puncture [...]. (TEC 1, 3, 4, 5, 6, 7, 8, 9, 10, 11,12, 13,14, 15, 16, ENF 1, 2, 3).

The newborn, right after birth, is submitted to numerous painful experiences during its first days of life, such as the administration of vitamin K intramuscularly and cutaneous perforation for capillary glycemia. When these babies need to be admitted to a Neonatal Intensive Care Unit, this reality becomes even greater, causing them to be constantly exposed to painful procedures, such as surgeries, tracheal cannula aspirations, venous punctures among others (Costa et al., 2017).

For Paixão et al. (2011) and Costa et al. (2017), while the procedures performed in newborns allow them to survive, they can be stressful and painful. A study carried out in eight Neonatal Intensive Care Units and five Pediatric Intensive Care Units reveals that in the first 14 days of life, newborns underwent approximately 364 painful procedures, that is, an average of 12 painful procedures a day. In this sense, it is of great importance that professionals understand how to identify the sources of pain in the newborn, performing these painful procedures only when necessary.

In a study accomplished by Oliveira et al. (2016), aiming for verifying the nursing professionals knowledge and attitude in a neonatal unit regarding the evaluation and treatment of acute pain in newborns, the authors have seen that most participating nursing professionals, erroneously, agreed that among the various types of puncture applied to the care of the newborn, calcaneal puncture is as painful as venous puncture and therefore should be avoided.

Considering that the participants have said that newborns have demonstrated pain and venous punctures represent, among the several procedures, the most painful procedure in the newborn, the

participants were asked: 'According the previous answer, describe the newborns behavior during the painful procedure indicating discomfort and pain'. The third category was then listed 'crying', since the newborn cannot express its sensitivity to pain, crying is the biggest indicative so that professionals can carefully take care of the referred clientele.

> [...] the first demonstration is crying [...]. (TEC 1,2, 3, 4,5, 6, 7, 8, 9, 10, 12, 14, 15, 16, 17, ENF 1, 2).
> [...] then, the behavior that we have seen in the newborn [...] the first thing is that they cry a lot [...]. (TEC 11).

Through the practical aid and scientific evidence, it has been observed that, for a better understanding of pain in newborns, it is necessary that the professionals involved observe the instability of physiological and behavioral parameters, because these, in the presence of painful stimuli, change (Melo & Cardoso, 2017).

According to Guinsburg and Cuenca (2010), when facing a painful stimulus, the newborn expresses pain through crying and changes in behavioral parameters (facial mimics and motor responses) and physiological (vital signs alteration and hormone levels). Crying is a complex phenomenon and depends on an interaction of the central and peripheral nervous system. The peripheral nervous system is responsible for the resonator, laryngeal and respiratory control. In the presence of painful stimuli, crying undergoes delicate changes, such as expiratory phase prolonged, loss of melodic pattern, increasing and the tone is also more incisive.

For Sposito et al. (2017), both crying and facial mime are the main parameters used by professionals in the field of neonatology for the evaluation of pain. However, in some cases, the use of crying as an indicator of the presence of pain is characterized as a contradictory event, since the child's crying is not always linked to painful stimuli.The fourth category of the present study was: 'Non-Pharmacological Interventions' for the pain control in the newborn. The statements below illustrate the aforementioned category:

> So, we try to minimize, as much as possible, the pain of the newborn [...] in facilitated tucking [...], you wrap it up, leave it warmer, right?, well wrapped up [...]. (TEC 1).
> [...] hold him into the facilitated tucking position [...]. (TEC 2, 10, 11, 12, 13, ENF1, 3).
> Facilitated tucking [...]. (TEC 14, 15, 16, ENF 3).
> [...] and then we perform the facilitated tucking, right? in the cloth diaper we can calm him down, these is the techniques that we use [...] (TEC 3, 9, 17).
> [...] if I see that the baby is in pain, [...] I make the baby feel comfortable in bed, there in the incubator [...] (TEC 4).
> We will perform the facilitated tucking, right?, and nesting the baby, there [...]. (TEC 5, 7).

According to Souza (2014), non-pharmacological interventions aim to prevent the intensification of a painful process, the disorganization, the stress and the agitation of the newborn, thus minimizing the repercussion of pain.

According to Castral, Ribeiro, and Scochi (2013), facilitated tucking method represents a non-pharmacological measure widely used in pain management in newborns. This strategy consists in holding the arms and legs of the newborn, keeping it in a flexed position. This procedure can be done quickly, in ten minutes and the benefits of this activity can be evidenced.

In a study by Christoffel et al. (2017), with the objective of describing and analyzing the attitudes of health professionals regarding the evaluation and treatment of pain in the newborns submitted to painful procedures in the neonatal unit, the authors showed that most of the sample studied prefer to use the facilitated tucking position prior to the procedure.For these authors, the facilitated tucking technique helps the self-regulation of the newborn during painful and stressful procedures, with the principle of maintaining a comfortable position. It is known that interventions of a non-pharmacological nature, which include changing the baby's position, nesting it, facilitated tucking, maintaining the flexed position and simply holding it, help managing and self-regulation of these newborns when acute pain makes itself present. However, wrapping up itself is not effective to reduce pain from moderate to severe pain procedures (Christoffel et al., 2017).

In a systematic review research, by Castral et al. (2013), five case-control studies have been found that investigated the effect of facilitated tucking on pain reduction in premature during calcaneal puncture or tracheal aspiration, through these procedures. It has been observed a lower score in pain intensity, as well as a decrease in heart rate and an increase in oxygen saturation in the sample studied. Therefore, these findings prove that facilitated tucking is an effective non-pharmacological measure while treating infants, causing them to calm down quickly and feel less pain.

The penultimate question refers to the knowledge of the existence of instruments and scales that aid in the measurement and evaluation of pain in newborns: 'Do you know of any instrument/scale to assess the pain in the newborn?'.

Eleven participants reported being aware of the scales, which facilitate the evaluation of pain in the newborn, and mentioned the Neonatal Infant Pain Scale (Nips) as an example of an instrument for this purpose. From the remaining participants seven answered yes, they have known pain assessment instruments for newborns, but have not mentioned any type of scale that represents it, and two participants answered that they have not seen any type of scale for that purpose. On the above, the following category was listed: Yes, Nips scale.

In a study conducted by Oliveira et al. (2016), the authors observed that, in terms of awareness about the existence of scales that measure neonatal pain, most nurses claim to know at least one type of scale referring to the numerous existing instruments to measure neonatal pain. The Nips neonatal pain scale was the most reported, with a percentage of 65.4%. Regarding the applicability of this instrument, 69.2% of the professionals have mentioned using the Nips scale at least once during the shift. According to Carvalho and Carvalho (2012), the use of instruments for measuring and recording pain in the newborn promotes awareness in the professional that cares for this clientele, in addition to contributing to the improvement of nursing care. Nursing can use several scales to measure the pain intensity of the newborn, each one has its advantages and limitations.

The last open question of the script used in the interview, the participants were asked: 'If your prior answer was yes, do you use this scale? And, if they answered no, Why?'.

After those questions, the professionals have reported the non-use of the scale for the evaluation of the pain in the newborn due to the lack of training, lack of demanding, and even its discontinuity in the implantation; Therefore, we got, after of these affirmations, the category 'Non-use of scale'.

> I think in order to become a routine we need more training. (TEC 1).
> At the beginning, it was asked for some children, for others the nurse did not even ask to make the scale, and then she did not continue [...]. (TEC 2, 17 ENF 3).
> [...] because it hasn't being used [...]. (TEC 3, 6, 9, 10).
> Here in the ICU we do not use the NIPS, I use in some newborns, but it hasn't often being used [...] (ENF 1).
> We got to do this procedure, right? implementing, but over time, it did not remain, it did not go forward. (TEC 11).

Studies have shown that there is a gap between the application of scientific knowledge and clinical practice performed by health professionals, especially when it comes to neonatal pain. Although there are validated scales and instruments for pain assessment and effective non-pharmacological and pharmacological strategies for pain management, pain management in newborns is still characterized as a problem in several countries. Among several barriers that make the adequate pain management difficult by health professionals in neonatal units, we highlight: lack of knowledge and resistance to changes (Oliveira et al., 2016; Christoffel et al., 2017).

Rating the newborn pain should be performed systematically and subsequently, recorded. Pain should be assessed at a minimum interval of four to six hours or if there is a change in the patient's clinical condition. The professional in charge, who mostly is the nurse, should put into practice evaluation methods considered more effective. Appropriate interventions should be prescribed and put into practice, with subsequent reevaluation (Christoffel et al., 2017).

Oliveira et al. (2016) showed in their study that a small part of the health professionals interviewed use scales to assess the pain in the newborn, as well as record a score or pain indicator in the medical records. In agreement with these findings, the authors reveal that, in the same way, these professionals affirmed that they have used and registered measures of pain relief during painful procedures. Therefore, based on the mentioned evidence, it has been observed that, although the interviewees demonstrated knowledge about pain measurement and recognized several relief measures, there is a gap between the knowledge referred to and the act of putting into practice the necessary measures regarding the pain management in the newborn.

Conclusion

We emphasize, as the main negative point evidenced in this study, the non-use of existing instruments for the pain evaluation in newborns, and this fact is understood, considering the lack of practice by the coordinators of the sector during the professional exercise.

It has been concluded that nursing professionals have knowledge regarding the pain evaluation and treatment in the newborns; however, it is necessary that they receive professional training on the subject matter.

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